

Photoimmunotherapy is a new form of cancer therapy involving near-infrared light. Photoimmunotherapy uses an antibody to which a photoabsorbing chemical is attached. The antibody–photoabsorber conjugate is injected into a patient. It will travel through the bloodstream and eventually reach the site of the tumor. The conjugate will then leak out of permeable vessels near the tumor. It will bind to special receptors on the surface of cancer cells. Once the conjugate is bound to cancer cells, the photoabsorbing chemical can be specifically activated by near-infrared light. When the chemical has been activated, it causes immediate damage to the cell membrane. Water that is outside of the cell rushes into it, causing the cell to swell. Nearby cells without the special receptors will not be affected. Increased pressure within the swollen cell causes the membrane to burst, releasing intracellular contents such as proteins, DNA and RNA. The cell then becomes smaller and shrunken in shape, a process known as necrosis. After treatment, the cell necrosis causes the tumor to shrink, creating spaces between the cells. The tumor will die and normal tissue will regrow in its place. Photoimmunotherapy is a new form of cancer therapy that is highly specific for cancer cells and does not damage nearby normal cells. It is currently in clinical trials in patients with inoperable tumors.

[Killing Cancer Cells with the Help of Infrared Light -Photoimmunotherapy](#)

Near-infrared photoimmunotherapy uses an antibody–photoabsorber conjugate that binds to cancer cells. When near-infrared light is applied, the cells swell and then burst, causing the cancer cell to die. Photoimmunotherapy is in clinical trials in patients with inoperable tumors.

<https://www.cancer.gov/about-cancer/treatment/types/photoimmunotherapy>